

Rec'd PCT/PTB 12 DEC 2005

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 11 MAY 2005

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Applicant's or agent's file reference 67787-75088		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/SE2004/001018		International filing date (day/month/year) 23.06.2004	Priority date (day/month/year) 23.06.2003	
International Patent Classification (IPC) or national classification and IPC G01C5/02				
Applicant TRIMBLE AB et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability.</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 20.10.2004		Date of completion of this report 10.05.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Dighaye, J-L Telephone No. +49 89 2399-2823		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/SE2004/001018

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-38 as originally filed

Claims, Numbers

1-58 as originally filed

Drawings, Sheets

1/12-12/12 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
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Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos. .

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-58
	No: Claims	
Inventive step (IS)	Yes: Claims	1-58
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-58
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

To Section IV

The application comprises an excessive number of independent claims, some of which are directed to apparently distinct features not linked by a common inventive concept.

If the application is to be prosecuted, for instance as a European application, its subject-matter should be restricted to a single concept. For instance, the features of certain presently independent claims should be made the subject-matter of dependent claims if there is a basis for that in the original disclosure; or certain independent claims should be deleted from the present set of claims.

More concretely, the set of claims comprises:

- Method claim 1: it refers to three possible errors, at least one of them being used for alignment controlling:
 - a) trunnion axis error;
 - b) horizontal collimation error;
 - c) total plumb error defined by two components PI and PII.
- Method claim 8: based on a horizontal orientation correction value depending on a transverse plumb error value. This relates to only one of the two components of claim 1, c), namely PI. Thus there is no use of the two components PI and PII of claim 1. Maybe this could be considered as a particular restriction of the method of claim 1, in which case the features of claim 8 pertaining to that restriction should be made the subject-matter of a dependent claim.
- Method claim 18: based on several specific steps (setting, pivoting, generating, automatically controlling) depending on different compass bearings, whereby no direct link to claim 1 or claim 8 is apparently present.
- Method claim 19: based on a vertical orientation correction value depending on a longitudinal plumb error value. This relates to only one of the two components of claim 1, c), namely PII. Thus there is no use of the two components PI and PII of claim 1. Maybe this could be considered as a particular restriction of the method of claim 1, in which case

the features of claim 19 pertaining to that restriction should be made the subject-matter of a dependent claim.

- Apparatus claim 28 directed to a surveying instrument suitable for the method of claim 8;
- Apparatus claim 37 directed to a surveying instrument suitable for the method of claim 19;
- Apparatus claim 40 directed to an error compensation system. This system compensates for two errors - tilt error and error due to mechanical imperfections - thus it is not linked to claim 1 dealing, as a minimum, with one error;
- Apparatus claim 58 directed to a surveying instrument comprising the error compensation system of claim 40.

To Section V

The closest prior art revealed by the International Search Report (ISR) appears to be D1 = US-A-6' 138 367. It is considered, in the ISR, as a mere example of the general state of the art. It is analysed in the present description, p. 2, ll. 9-15. D1 does not appear to disclose all the features a) through d) of claim 1; and consequently also not the more restrictive features of claims 8, 18, 19 and the corresponding apparatus claims. A system compensating for two errors, comprised (see claim 58) or not (see claim 40) in a surveying instrument, is also not disclosed in D1. Thus the present claims are considered novel over D1.

The other documents cited in the ISR, namely D2 = US-B1-6 421 360 and D3 = DE-A-100 52 150, are even less relevant. D2 is directed to a rotational constructional laser, i.e. not the kind of surveying instrument referred to in the present claims. D3 discloses a survey instrument with magnetic incremental coding means unrelated to any aspect of the present invention or inventions. Thus there appears no combination of D1 with either D2 or D3 which could render the subject-matter of the present claims obvious.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

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To Section VII

The structure of present claim 1 is misleading. Since claim 1 is a method claim, one would expect that all clauses a) through d) each refer to a step of the method. In fact, a), b) and c) refer to types of errors, whereas only d) is a method step.